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Erwin Roy John

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EXAMINER

NASSER, ROBERT L

ART UNIT

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3735

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DELIVERY MODE

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PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 48, 49, 51 and 68 are rejected under 35 U.S.C. 103(a) as being unpatentable over in view of Yanagidaira et al 5954629 in view of Yasushi et al 5241967 and Devito. Yanagidaira shows active electrode 12 on a headband 11 that produces eeg signals, an amplifier 24 amplifying the eeg signals, a selectively adjustable filter (see column 4, lines 55-64), that has a center frequency which is adjusted which separates a frequency band (alpha) from the spectrum of frequency bands. It does not have a tone generator. However, Yasushi teaches an identical device that includes and a tone generator 14 producing an audio output corresponding to the signal to help the user to provide feedback and encouragement to the user. As such, it would have been obvious to modify Yanagidaira et al to use such a tone generator, to enhance the evoking of the desired brain waves. The combination does not have the telemetric communication means. DeVito shows a wireless EEG headband device that includes an amplifier mounted on the headband. It would have been obvious to modify the above combination to use such a telemetric communication, as it is merely the substitution of one known communication medium for another. In addition, it would have been obvious to provide the headband structure of Devito, as it is merely the substitution of one known equivalent EEG electrode device for another. Accordingly, the combination would have eeg electrodes and an amplifier (from Devito)

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on the connections means, a transmitter on the connection means, a receiver at the processing device 200, which receives a signal from the transmitter and provides it to amplifier 24, so that the receiver and amplifier can be considered the receiver. In addition, the combination has the filter from Yanagidaira, and a tone generator from Yasushi.

Claims 48, 49, 51, 52, 55, 59, 65, and 68 are rejected under 35 U.S.C. 103(a) as being unpatentable over Itil et al 5357957 in view of Johansson 4683892 and Lee 4454886. Itil et al shows a connection means, i.e. a headset which includes a headband, mounting eeg electrodes to the body for measuring eeg signals, wireless radio transmitter (column 6, lines 13-26), to transmit the eeg signals to a remote receiver, and a remote receiver which receives the signals and processes them to identify brain function and/or dysfunction (column 1, lines 25-28). In addition, the processing system, connected to the receiver includes an amplifier and a selectively adjustable filter (see column 6, lines 1-30). The examiner notes the features of the processing mention in the first modified embodiment at the top of column 6 are inherently included in the wireless embodiment discussed in the second paragraph of column 6. The system includes an output device, i.e. crt display, for displaying brain function. It does not specifically state that it identifies brain injury. However, Johansson teaches that it is well known to use an EEG signal to automatically identify brain function and dysfunction (see background section). Hence, it would have been obvious to modify Itil to identify brain dysfunction, as it is merely the substitution of one well known use of an EEG for another. In addition, the combination does not specifically

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state that it produces an audible warning when injury is detected. Lee teaches that an audible output based on the brain waves is better as it allows the physician to immediately identify changes in the brain wave signals and it is easier to understand than a complex waveform. As such, it would have been obvious to modify the above combination to use an audible output, to simplify analysis of the brain waves.

Claims 54 and 66 are rejected under 35 U.S.C. 103(a) as being unpatentable over Itil in view of Johansson et al and Lee, as applied to claims 48, 49, 51, 52, 55, 59, 65, and 68 above, further in view of Zimmerman et al 5279305. Zimmerman shows an EEG processing system including a headband with electrodes 23, 24, and 25 including a positive and negative electrode. In addition, it is inherent that there is a ground. Hence, it would have been obvious to modify the above combination to use such an electrode arrangement, as it is merely the substitution of one known configuration of electrodes for another. Claim 66 is rejected in that applicant has not stated that the specific number of electrode sand amplifiers is for a specific purpose or that they solve a stated problem. As such, it appears that the exact number of electrodes and amplifiers would have been a mere matter of design choice for one skilled in the art.

Claim 69 is rejected under 35 U.S.C. 103(a) as being unpatentable over Itil et al in view of Johansson et al in view of Lee, as applied to claims 48, 49, 51, 52, 55, 59, 65, and 68 above, further in view of, further in view of John 5287859. John further teaches that split-half rectification is a known processing technique to identify brain dysfunction. As such, it would have been obvious to modify the above combination to use such a

technique, as it is merely the substitution of one known equivalent processing technique for another.

Claims 45-47 are allowed. Claims 45-47 define over the art of record in that none of the art compares the F ratio in the presence and absence of stimulation with control data to diagnose injury or dysfunction of the spinal cord, brain stem, or brain, as claimed.

Applicant's arguments filed 12/17/2007 have been fully considered but they are not persuasive.

It appears that applicant has not understood the proposed combination based on Yanagidaira, and the examiner has spelled out the elements in the rejection above.

Applicant has asserted that there is no way to have amplifier 24 of Yanagidaira perform both amplification functions. As noted above, the examiner never indicated that it would, as Devito provides the first amplifier and the amplifier of Yanagidaira is the second amplifier.

Applicant has noted that Lee does not provide a sound generator converting a frequency band signal into sound. It is the examiner's position that this point is irrelevant. Lee is the third reference in a three reference combination. It need not have all of the claim features. At present, the filter of Itil separates a frequency band from the brain wave signal and provides an output based on the frequency band. Lee is merely cited to teach that an audible output is advantageous. There is no requirement in the Patent Laws that Lee, by itself, teach all of the features of the claims. Rather, the question is what the combined teachings show. In the current case, the combined

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teachings separate the signal. Indeed, it is not sufficient to overcome an obvious combination by attacking the references individually.

In addition, since Lee filters the brain wave signal, it provides a frequency band from a brain wave spectrum, i.e. the spectrum of detected signals. Applicant has not specified what the frequency band is. However, again, the examiner notes that this point does not affect the obviousness analysis.

Applicant has further asserted that the sound output of Lee does not represent the brainwaves in a particular frequency band or group of frequency bands, as the sound output is for the entire frequency band 1-50hz. The examiner notes that the Federal circuit has established that a reference is good for all it teaches. Here, Lee teaches the concept of using sound, to provide more immediate feedback.

Applicant has further argued that Lee cannot be used to analyze brain waves of a subject. Whether or not this is true does not change the fact that Lee teaches that it is desirable to provide an audible output signal. Again, the examiner notes that Lee is a secondary teaching and need not have all of the claimed features by itself to be used in an obvious combination.

Applicant has further asserted that Itil does not have a selectively adjustable filter separating one of a single frequency band and a group of frequency bands from a brain wave spectrum. The examiner disagrees. Applicant has not defined what frequency bands are being referred to. Itil separates a frequency band, defined by the adjustable filter, from the received brain wave spectrum signal. The claims do not define what

frequency band is meant, i.e. if applicant means alpha or theta or beta, then applicant should define it in the claims.

THIS ACTION IS MADE FINAL. Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

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Any inquiry concerning this communication or earlier communications from the examiner should be directed to Robert L. Nasser whose telephone number is 571 272-4731. The examiner can normally be reached on m-f 9-5.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Charles Marmor II can be reached on 571 272-4730. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Robert L. Nasser Jr/
Primary Examiner, Art Unit 3735

RLN
March 5, 2008

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